

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 02-246161

(43)Date of publication of application : 01.10.1990

(51)Int.Cl.

H01L 29/784

(21)Application number : 01-066762

(71)Applicant : FUJITSU LTD

(22)Date of filing : 17.03.1989

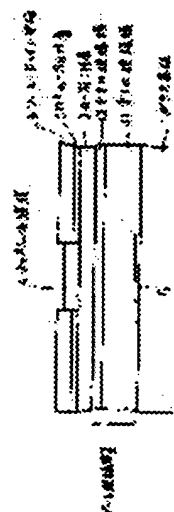
(72)Inventor : NASU YASUHIRO  
OKAMOTO KENJI  
WATABE JUNICHI  
ENDO TETSURO  
SOEDA SHINICHI

## (54) THIN-FILM TRANSISTOR

### (57)Abstract:

**PURPOSE:** To be hardly influenced by dust particles, contamination or the like in a substratum, to be excellent in a dielectric breakdown strength and to be pinholeless by a method wherein an insulating film formed by an atomic-layer epitaxial method is used as a gate insulating film.

**CONSTITUTION:** A gate electrode G composed of a metal film such as a Ti film is formed on a glass substrate 1; after that, a film in which a first insulating film 11 and a second insulating film 12 have been laminated is formed as a gate insulating film 2 with which the gate electrode is covered. Alumina films of a monoatomic layer and titanium oxide films of a monoatomic layer are laminated alternately by using an atomic-layer epitaxial method; a laminated film with a thickness of about 4500Å as the first insulating film 11 is formed on the glass substrate 1. Accordingly, since the first insulating film formed by the ALE method, a pinhole and a crack are not produced; in addition, the second insulating film 12 at its upper layer can be formed continuously inside an identical vacuum tank without breaking a vacuum after the first insulating film 11 at its lower layer has been completed, accordingly, an interface between an SiN film and an a-Si:H layer can be kept clean.



## LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]